

AN ORATION,

Delivered June 5th, 1884,

AT THE UNVEILING OF A

Tablet to the Memory of Prof. C. F. Hartt, A. M.

AT ACADIA COLLEGE, N. S.

BY

SILAS ALWARD, A. M., D. C. L. '66

PUBLISHED BY REQUEST.

ST. JOHN, N. B. :

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Unveiling of a Tablet to the Memory of Prof. C. F. Hart, A. M.

MR. PRESIDENT, LADIES AND GENTLEMEN :

Twenty-four years ago this month CHARLES FREDERICK HART graduated Bachelor of Arts at this University. He was then quite unknown to the great outside world. Beyond a small coterie of friends and his College associates, who knew his mental calibre and had learned to appreciate his worth, his name was unheard. Six years ago, the eighteenth of last March, he fell a martyr to Science, in the Capital of a great Empire, honored and personally esteemed by its enlightened Ruler, better known than almost any other man in that vast country, and his death mourned as a public loss, so distinguished had been his services in the domain of science, by the most advanced thinkers of two continents. And what a splendid record does his too short, yet eventful, career present! Through all these years, ever "wearing the white flower of a blameless life", we see a lofty ambition subordinated to the noblest purposes.

A brief sketch of his post graduate career would very naturally be expected on this occasion. After leaving College he assisted his father as teacher in the Saint John Ladies' High School. During this period it was my privilege to enjoy much of his society. Being his almost constant companion I gradually learned to appreciate at its full value his real worth, as I marked his manly aspirations, his unflagging industry, his sterling integrity, his indomitable pluck

and pure, unselfish life. No one, whom I have met, seemed to grasp more firmly the sublime truth :

"That men may rise on stepping stones
"Of their dead selves to higher things."

Impelled by a force of will, as determined as it was unpausing, to prosecute his favorite studies, he felt keenly his straitened circumstances and often contrasted his position with that of others apparently more happily situated. Yet with a singleness of aim that knew no wavering he abated no "jot of heart or hope; but still bore up, and steered right onward." His was a purpose,—

"To grasp the skirts of happy chance,
"And breast the blows of circumstance,
"And grapple with his evil star."

In 1862 he entered as a special student the Museum of Comparative Zoology, at Harvard University, under the immediate instruction of the world-renowned naturalist Agassiz. The effect produced by such an instructor upon the impressible mind of so ardent a scholar can readily be understood. The progress he made in natural Science was most marked. In addition to his favorite studies of Geology and Paleontology he devoted much attention to Zoology. Here he remained three years, with the exception of a part of 1864, when employed on the staff engaged in making a Geological survey of New Brunswick, his native Province.

In 1865 Professor Agassiz set out on the famous "Thayer" expedition to Brazil. Although its primary object was an investigation of the fisheries of that country, yet a study of its Geology formed a part of the plan contemplated. He was accompanied by a corps of able assistants, among whom was enrolled his favorite student, Prof. Hartt, in the special capacity of Geologist. On the voyage out the great naturalist, although in delicate health, delivered a series of lectures to his assistants on the promising field of

scientific enquiry and research Brazil afforded. During this expedition the subject of our portraiture explored the south-east coast of Brazil for nearly a thousand miles, from Rio de Janeiro to Bahia or San Salvador, ascending at various points far inland up the rivers which seam the slopes of the lofty table lands that dip toward the sea. In 1867 he set out on an independent expedition to this interesting country, aided by private subscription, and examined the coast reefs and the Geological formations around Bahia and to the north as far as Pernambuco. The results of these two trips to Brazil were published, in 1870, in a work of over six hundred pages, entitled "The Geology and Physical Geography of Brazil." Prior to these Brazilian explorations scarcely anything was known of the Geology of that country. It presented a field for investigation most attractive to the naturalist, and those who knew the ardent temperament of Prof. Hartt can appreciate the zeal with which he prosecuted his researches. His contributions to science proved to be most valuable. He showed there were two distinct kinds of reefs on the Brazilian coast, the Sandstone and Coral, and told in that terse, yet clear and attractive style, characteristic of all he penned, how each was formed. He found in one of the southern Provinces a large extent of marine cretaceous rocks filled with Fossil shells.

After his return in 1867 he spent some time in lecturing, at the Cooper Institute, Pelham Priory, and other places in and near New York City, on the Geological explorations made in that country. In 1868 he was chosen Professor of Natural History in Vassar College, at Poughkeepsie. He soon after resigned this position to accept the Professorship of Geology in Cornell University. In 1869 the Hon. E. B. Morgan, of Aurora, New York, fitted out at his own expense an expedition to Brazil, having as its sole object Geological investigation. The staff consisted of Prof. Hartt, Prof.

Prentice and eleven students of Cornell University. He likewise accompanied the second Morgan expedition to that country in 1871. During these two last visits he did more than any living man had ever done to bring the Amazonian valley under the notice of the scientific world. Hitherto, so far as its geology was concerned, it was a *terra incognita*. His revelations were of the most interesting and startling kind. He discovered extensive Carboniferous deposits together with large quantities of Devonian and more recent fossiliferous remains. He was also able to refute the theory of a vast Amazonian glacier. This he did in opposition to the view of his former instructor and patron, Agassiz. That great man, without adequate research and by a too hasty generalization, extended the ice-sheet of the glacial epoch over the whole valley of the Amazon. Prof. Hartt demonstrated that, though glaciers may have occurred on the coast near Rio, no traces of them exist even so far north as Bahia. This settling forever of the question concerning ancient glacial action, at the equator, of itself was sufficient to establish the reputation of any explorer. These four Brazilian expeditions, coupled with the careful, minute and scientific manner in which they had been conducted, rendered Prof. Hartt the best qualified of any living Geologist, and doubtless led to his selection by the Emperor Dom Pedro, to enter upon one of the grandest tasks ever committed to a man of science,—to make a Geological survey of an Empire with an area of 3,238,000 square miles, abounding in rich and varied resources and presenting to the eye of the Geologist an almost virgin soil. In May, 1875, he received his instructions from the Emperor as chief of the Imperial Geological Commission, and shortly after set out on his great life work, first making a short visit to England, where he met many of the leading Scientists of that country. Seven years were given him to complete this great undertaking.

His salary was fixed at ten thousand dollars per year. To this ennobling task he brought the resources of a wonderful energy and a ripened experience. For nearly three years he prosecuted his work with such zeal, ability and enlightened research as to elicit the warmest encomiums of the most eminent geologists of the day. The amount of work compressed in this short period of his life almost passes belief. It was then he laid the ground-work of the noble structure he hoped, but was not spared, to rear. The "thews of Anakim, the pulses of a Titan's heart," must have felt such a strain. Naturally of a weak constitution, his great power at length gave way, and being no longer able to ward off the insidious approaches of disease, he fell an easy prey to yellow fever, and after an illness of three days gently passed away. Stricken down thus early in life, when everything betokened a future full of hope and bright with the promise of obtaining the highest distinction, his case seems more than ordinarily sad. He had reached an eminence whence he could see the kingdom of his most daring aspirations spread out before him, and from its commanding height he had been permitted to catch a view of the promised land, and yet was destined not to enter. He had just commenced to publish his reports when his work was stayed by the hand of death. Sometimes we feel inclined to murmur at the will of Heaven and ask, "why is it the Evil are often spared to work their deeds of darkness and shame and the Good snatched suddenly away in the mid-career of their usefulness"? But still it must all be for the best.

"Oh yet we trust that somehow good
"Will be the final goal of ill."

Amid life's changes and strange inscrutable vicissitudes, we yet believe—"That nothing walks with aimless feet."

What Prof. Hartt's reports would have been we can form some estimate by his published works, "The Geology and Physical Ge-

ography of Brazil"; "Brazilian Antiquities"; "The Mythology of Brazilian Indians", and numberless articles in Scientific Journals. These stamp him as a man of unwearied application and great capacity. On one of the principle streets of Rio, with its population of nearly three hundred thousand, stands the Museum of the Commission, the product of his genius and toil, replete with a rich and varied collection of Fossils, Antiquities, rock and reef specimens, Corals, and Photographic views of objects and places of interest, from almost every province of Brazil. What fitter or grander monument could be reared to his memory? What memorial could shed a brighter lustre on his name? This will perpetuate his fame, when sculptured marble shall cease to preserve its record and loftier monuments are levelled with the dust.

The following is but an imperfect summary of his contributions to scientific discovery. On coming to Saint John he entered zealously into the Geological Exploration of the neighbourhood, particularly that portion where fossil plants had been discovered. His work at the fern ledges near Carleton is well known. His first collections from these ledges were studied and named by Dr. Dawson, but the later ones he determined himself. He also at this time visited Grand Lake and collected fossil plants of the coal measures of that locality. One of these, *Palæopteris Harttii*, a Fossil tree fern, was named by Dr. Dawson for him. Of the Devonian plants collected by Prof. Hartt, at the fern ledges, and determined by Dr. Dawson, a fern, *Sphinopteris Harttii*, was also named in his honor. He also furnished the first positive evidence of the existence of primordial strata in New Brunswick.

After Prof. Hartt had entered upon his studies at Cambridge, he visited the Basin of Minas and made a large collection of Fossils from the lower Carboniferous mountain limestone. Two of these

fossils were dedicated to him, viz.: *Edmondia Harttii*, a fossil shell resembling a clam, and, *Gyroceras Harttii*, a lobed spiral shell something like a Nautilus. In 1864 he obtained proof of the Pre-Carboniferous age of the gold of Nova Scotia. Prof. C. D. Walcott of the United States Geological survey is now engaged on a revision of the type collection of the Cambrian Fossils of Saint John left by Prof. Hartt at Cornell University. It is his intention to name a new type of *Gasteropod*, which he has discovered in this collection, *Harttia*, in honor of Prof. Hartt. He, as already stated, disproved Agassiz's hypothesis of the glacial origin of the Amazon valley. This bold stand in opposition to one so eminent, fortified by evidence the most indisputable, won for him great distinction and placed him in the front rank of the most distinguished Geologists of the day,

A sketch that would do full justice to this noted son of Acadia would far transcend the limits prescribed to the discharge of this solemn task. All I can do is to touch the salient points of his life-work and briefly indicate a few of his individual characteristics.

His great versatility was the surprise of all with whom he came into contact. He was an accomplished linguist; had a fine taste for Music; could draw, sketch, and was a standing authority on the quaint lore and legendary tales of different countries. At the time of his death he could read with ease ten or more languages, and could speak fluently five modern ones. On one occasion he lectured at Rio before the Emperor, his Court and the *elite* of the City, in Portuguese. One present remarked, he spoke with greater apparent facility than he had ever heard him in his own vernacular. But it was in the realms of Science where he exhibited his extraordinary powers to the greatest advantage. The readiness with which he could recollect the names and classify Fossils was simply

marvellous. In this respect he far outstripped all other students at Harvard.

For history and mathematics he had no taste, and their study during his College course was exceedingly irksome to him. Nor did he seem much to care for light literature. He thought time uselessly spent in novel reading. His powers of organization were of a superior description and admirably fitted him for his last great work. His personal magnetism was more than ordinary, as evidenced by the strong friendships he formed and the ascendancy he acquired over his staff of assistants. They soon learned to catch the fervor of his zeal and the inspiration of his lofty motives.

Notwithstanding the ease with which he could master a language, Prof. Hartt was not a fluent or eloquent speaker. He would often stammer, hesitate and be at a loss for a word. This arose from his studied exactness of speech, and the almost painful brevity with which he sought to convey his ideas. Yet in lecturing, so deftly could he draw, and so skilfully could he illustrate his descriptions by a rapid sketch, he very much relieved the monotony of his address and often succeeded in rendering his platform efforts comparatively popular.

His wondrous versatility, however, did not cause him to swerve from the purpose he set before him in life. After all he was a man of one idea—and that to stand in the front rank of Natural Scientists. To this one object he subordinated all his powers and dedicated his great and varied knowledge.

For money, except as a means to an end, he had not the slightest desire ; nor did he seem to know its value, save when purchasing a book or spending it to prosecute his favorite studies. In these days of sordid pelf and grovelling desires what a relief does such and example present ! He was one of the most unselfish of men.

To do a noble act, to assist a friend, to speak a kind word either of admonition or instruction, seemed the very essence of his being.

These are a few of the cardinal virtues of him to whose memory yonder statue is erected. Pure in life, unselfish in deed and thought, ready to sacrifice all, even life itself, to broaden the horizon of Science and extend the limits of knowledge, what more, I ask, can be added?

Sic itur ad astra.

My fellow class-mates:—

Such then in brief was the work, and such the life of him, with whom for four years we enjoyed daily communion within the walls of our *Alma Mater*. How barren seems the record of our achievements as contrasted with that of him we mourn. Regret now is useless, save as a stimulus to future exertion. The past is beyond recall; yet "some work of noble note may yet be done." Let his brilliant career fire us with a worthy ambition to follow, "with steps however unequal and at a distance however great," the course of so bright an example.

But yesterday, in the Church at the foot of this hill, he stood by our side, cheerful and radiant with hope, and received from the hands of the late venerable President of this University, his Bachelor's Degree. To-day, in a Cemetery overlooking Lake Erie, in the land of his adoption, he finds lasting repose, unvexed by the cares and undisturbed by the turmoils of life. From that lonely grave comes a voice, and it bids us in life's stern battle ever to stand for the right, and to emulate him in strength of will—"To strive, to seek, to find, and not to yield."